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Antimicrobial Activity of Two Selected Medicinal Plant Extracts against *Propionibacterium acnes*

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Background: Acne vulgaris is a common skin condition seen among teenagers and young adults. The severe form of the condition can be distressing, because of pain and skin scarring. The commonest aetiological agent for the condition is *Propionibacterium acnes* (*P. acnes*) (new name – *Cutibacterium acnes*). There are many artificial and natural substances used in the treatment of acne.

Objective: To determine the anti-microbial activity of selected medicinal plants extracts and a mixture of the selected plant extracts against *Propionibacterium acnes*

Methods: Plant parts were collected, oven dried (40 °C) and were subjected to soxhlet extraction procedure. The fractionated (hexane, ethyl acetate, methanol and aqueous) plant extracts of *Centella asiatica* (Family: Apiaceae, common name: Gotukola) and *Ricinus communis* (Family: Euphorbiaceae, common name: Eदारu) were prepared. The main acne causative agent, *P. acnes* was used to determine the anti-microbial activity of the crude extracts of the plants. Agar well diffusion method was used to determine the crude anti-acne activity of all the extracts and the 1:1 mixture of the two extracts against *P. acnes*. Zones of inhibition were measured after 48 hours of incubation under anaerobic conditions. All the testings were triplicated. Minimum inhibitory concentrations (MIC) were detected by microtitre plate method, for the extracts which showed zones of inhibition in plate method.

Results: Zones of inhibition for methanol, hexane, ethyl acetate and water extracts of *Centella asiatica* were 13.00, 13.00, 12.67 mm and for water and for *Ricinus communis* were 12.00, 10.67, 11.00 and 9.33 mm respectively. The zones of inhibition for methanol, hexane, ethyl acetate and water extracts were 12.00, 16.00, 13.30 and 8.67 mm respectively. The MIC of the methanol extract of *Centella asiatica* was 12.5 mg/mL and that of the hexane extract of *Ricinus communis* was 6.25 mg/mL.

Conclusion: Methanol and hexane extracts of *Centella asiatica* (Gotukola) and *Ricinus communis* (Eदारu) separately as well as 1:1 mixture exert antimicrobial effects against *Propionibacterium acnes*.

Keywords: Acne, Antimicrobial, *Centella asiatica*, *Propionibacterium acnes*, *Ricinus communis*